THE NEED FOR AGRICULTURAL EDUCATION

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While teaching in the University of Florida my attention was called to the need of certain lines of agricultural training in a very forcible manner. It was there that I left the boarding house for a home and began to learn something of the problems which confront the housekeeper. To my astonishment I found, on looking over the grocer's bill, that we were paying forty cents a pound for butter. Straightway there was an investigation. When called upon, the grocer brought out a neat little brick of butter and said, "Yes, that is as cheap as we can sell Wisconsin butter." "Wisconsin butter!" I gasped. "You do not mean to tell me that you are selling butter from Wisconsin. Do not Florida people make butter?" By way of answer he brought out a pan of greasy stuff which he sold to some people under the name of butter at twenty cents.

Then I began to reflect a little. There is a University of Wisconsin. Connected with this is an experiment station and an agricultural department. Certain men up there have interested themselves in securing a better breed of cattle and improving dairy methods. A professor had actually invented a separator and a milk tester. Results:

	Butter.	Cheese (lbs.).
1880	33,500,000	19,500,000
1890	66,300,000	54,000,000
1900	80,000,000	60,000,000
1905	120,000,000	110,000,000

In the last five years the production of farm butter increased thirty-eight per cent. By this time the total production of butter and cheese must be approaching 500,000,000 pounds. In one year Johanna, just a cow, produced 13,186.2 pounds of milk which was turned into 557.62 pounds of butter worth $119.49, and the skim-milk left was worth $21.10. Deduct from this $45.28 for her keep and you have a net profit of $91.31. That was pretty good, but the

next year she leaped to nearly 27,500 pounds of milk, nearly eighteen times her own weight. Then there was Pedro's Pandora which produced 13.29 pounds of butter fat in seven days. Meantime shippers continue to buy up miserable scrubs from the Florida and Georgia crackers at $10 and $15 per head and ship them off to Cuba, while tourists and native dwellers of the towns buy Wisconsin butter at forty cents. If the crackers only knew!

Take the matter of corn. "Hog and hominy" is a distinctly southern dish, yet here are some comparative statistics of corn production: North Carolina, 16.5 bushels per acre; Pennsylvania, 32.5; South Carolina, 15.1; Michigan, 30.1; Georgia, 13.0; Wisconsin, 32.0; Alabama, 15.5; Minnesota, 27; Mississippi, 17.0; Kansas, 22.1; Louisiana, 17.5; North Daokta, 20; Texas, 21; South Dakota, 25.5; Oklahoma, 24.4; Colorado, 23.5; Arkansas, 17.2; New Mexico, 29. Most of the states with the better yield probably are better adapted to corn, but the yield in the South can be greatly improved. Contrast with the above some experiment station and demonstration farm results. In 1908 the Georgia Experiment Station made tests with thirteen varieties of corn and secured an average yield of 30.5 bushels. The highest yield was of the Marlboro Prolific, 39.59 bushels. A demonstration farm in Mississippi sets 35 bushels over against the average of 17, one in Alabama 37.5 over against the average of 15.5, and one in Virginia 43.75 over against the average of 25, and the experiment station in the same state ran the yield up to 75. In Illinois the experiment station has produced 100 bushels per acre, and a boy in Arkansas has done the same, winning the prize in the boys' contest.

There is no mystery about it—simply intelligent selection and cultivation and economic fertilization. Instead of sixty pounds of fertilizer the Georgia farmer will have to apply from 200 to 350. At the experiment station they applied 353.9 pounds. The director of the station, the Hon. Martin V. Calvin, says: "It is not necessary to issue a propaganda in favor of buying fertilizer in any cotton state. . . . The necessity is to educate, to induce, to persuade, the great mass of fertilizer purchasers to use material with an open hand, intelligently."

For years the southern farmers have been told to plant less cotton and more corn. It is unnecessary. Nine cotton states now produce 561,103,000 bushels to 402,628,000 by nine northern and

western states. But to do this the South took 30,767,000 acres, while the other nine took only 15,564,000. More fertilizer will help toward the 800,000,000 mark.

Testing seed is important. The work of Professor Holden in adding millions to the wealth of Iowa through seed selection is a matter of common fame. Out in Texas tests were made from seeds from the fields of several different farmers. The best yielded twelve bushels more per acre than the average of the others. Of the thirteen varieties tested in Georgia the Marlboro Prolific produced 39.59 bushels, while Riley's Improved produced only 24.78. Many a farmer's son knows all about the Duke of Marlborough and the battle of Blenheim—the daughters know about the present duchess—but never heard of Marlboro's Prolific. Many never heard of either. If they only knew.

Tobacco is a distinctively southern crop. In Virginia they raise 675 pounds to the acre; in North Carolina, 580; in Florida, 875; in Kentucky, the greatest tobacco state of all, 870. The largest of the averages, that of Florida, is exactly half the average in Massachusetts, the state of abandoned farms. In New Hampshire they raise 1,785; in Pennsylvania, 1,375.

A great deal of the waste and deterioration in tobacco takes place after the crop is in the shed, due to unscientific curing. Experiments with steam curing showed practically no loss. Here, as well as in corn, the matter of seed is important. Two-thirds of the tobacco now grown in Wisconsin came from seed which resulted from experiments carried on at the Wisconsin Experiment Station. The average planter does not know that the leaves should not be stripped from the seed stalks when the rest of his tobacco is cut. Neither is he expert in selecting hardy plants from his plant bed. But he could increase the yield and quality, if he only knew.

Not so very long ago rice was supposed to be peculiar to the swamp lands of the Gulf Coast and the South Atlantic. In 1903 the Arkansas Experiment Station began a series of experiments on rice. In 1908 Arkansas had about 28,000 acres of rice with an average yield of forty bushels. It is believed that the yield for 1909 will exceed 1,750,000 bushels, and the cultivation has extended to Missouri. The price received varies from $0.80 to $1.00 per bushel. The experiment station has made one acre yield 100 bushels. In Georgia they are experimenting now with upland rice. Some day

rice may reduce the price of flour, if we only knew enough about its cultivation.

In 1894 my career as a school teacher began in the black belt of Alabama where cotton is king. At that time this ruler was grinding down his subjects with a heel shod with four and five cent cotton. I longed to get away from the cotton belt where I would never again see a stalk of cotton nor hear the despairing wail of the planters. Now we have changed all that and cotton is a beneficent ruler once more—only his subjects are not yet sufficiently enlightened in the matter of selection, fertilization and cultivation, to say nothing of care and marketing.

On some of the 40,000 demonstration farms scattered from Virginia to Texas a number of tests have been made on cotton, notably in Alabama, Georgia, and Mississippi. A plant cultivated the old way grew fourteen inches high in a certain time and weighed three ounces. They call this bumble-bee cotton because a bee can stand on the ground and sip honey from the blossom. By new methods of cultivation another stalk was raised to twenty-two inches in the same time and it weighed sixteen ounces. Down in Alabama where the planter was averaging 169 pounds of lint cotton to the acre the demonstration farm got 428. In Mississippi the planter average of 228 pounds was raised to 445 by demonstration methods. Mr. Daniel J. Sully knows a few things about cotton besides how to corner it. In 1906 when he visited North Carolina he was invited to inspect a field near Raleigh growing two and a half bales to the acre where previously only one-half bale had been produced. He could not believe it until he went out and saw for himself. Scientific knowledge applied to farming did it. If the farmers only knew!

In the summer of 1907 while passing through Van Buren, Ark., I counted, near sundown, twenty-six farm wagons standing in line, waiting for a chance to unload their burdens of Elberta peaches ready for shipment to northern and eastern markets. Some of the peaches were beauties, some were not. The difference in most cases probably could be accounted for by the difference in the scientific knowledge of the producers. One man was reputed to have sold his crop on the trees at $125 per acre. That same fall the banks of Fayetteville, Ark., did not curtail payments—that was the panic year—until forced to it by their correspondents. The explanation

is that their coffers had just been filled by a bumper apple crop. If one passes the canning factories of Fayetteville now, he will find that they are using many faulty apples. In the window of a certain store a few days ago some fine apples were on display, underneath which was this legend: "Fifteen acres sprayed and not a wormy apple in the lot." There is a great deal in the proper spraying and fertilization of fruit, if the fruit growers only knew. But how shall they know except they hear, and how shall they hear except they be taught, and how shall they be taught unless schools be provided.

There are a few agricultural colleges, but they hardly supply the demand for trained investigators and teachers. As for the farmers, they touch these only remotely, except through short courses and extension work and this is only in its infancy. The normal schools of Missouri were first in the field in training teachers of agriculture and probably are now the best in the country for that specific work. The normal schools of Alabama, Arkansas, Georgia and South Carolina are taking up the same work. But they reach the farmer only indirectly. Several of the states, in an effort to reach the farmer directly, have gone a step farther and provided district agricultural high schools. Such are to be found in Georgia, one for every congressional district, and Alabama, Louisiana and Arkansas are preparing to start schools of like character. More than this, the states of Alabama, Arkansas, Georgia, Louisiana, Mississippi, South Carolina, Tennessee, and Texas have laws requiring the teaching of agriculture in the rural schools. Besides this the agricultural societies have done a great deal to promote agricultural education. The Agricultural College of Georgia claims to have started the first cotton school ever held in January, 1908. The Farmer's Union of Arkansas anticipated them by one held at Conway in 1907. Most important of all is that the unions are now more interested in education than in politics.

The high schools mentioned above may accomplish much, but the way to reach all the farmers is through the rural schools. Some farmers may still scoff at book farming, but the boys' contests will open their eyes. If not, those boys will one day be farmers and they will not forget. It is not within the province of this paper to map out a definite course of study for the rural schools, showing just when, where, and how agriculture may be taught.

The possibility of such a thing is no longer debatable. The purpose of this paper is to emphasize its advisability.

The Negro has been told that he needs industrial education. Some have accepted this advice and are securing it at Hampton and Tuskeegee. When they secure this they cease to hew wood and draw water for others. Recently a southern white man wanted a certain kind of plastering done, but searched in vain for some one to do it. At last he saw two Hampton graduates doing exactly what he wanted. He employed them at $4.00 per day and they hired a white man to carry mortar at $1.00. The Negro farmer who has been to Hampton or Tuskeegee ceases to rent or mortgage.

Though democratic in name and to some extent in form, the American nation has never become thoroughly democratic in spirit. We have often been told that America is another name for opportunity. Now opportunity means a chance to rise above one's fellows, and especially to escape manual labor, and that is what nine-tenths of the Americans want. Education has been shaped to promote this end. Not every man can be at the top, if there must be a top. Every man's living ultimately comes out of the ground. With the passage of years and the increase of population the problems of extracting that living become more and more acute. What will become of the man, white or black, who has neither industrial nor cultural education?

Education must be democratized and made to subserve the economic interest of man. This will not kill the cultural school, but will foster it. The man who wants to be a lawyer or a doctor or a teacher or a journalist or a novelist will have a hundred opportunities where he now has one.

Between 1862 and 1868 the United States collected $68,000,000 in the way of a tax on cotton. The legality of this tax was contested and affirmed only by an evenly divided court. Its injustice is now generally conceded. This tax should be returned to the southern states for the benefit of rural schools with the stipulation that agriculture should be taught.